REMARKS/ARGUMENT

Claims 1-13 have been examined and are pending in the present application.

Claims 1-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the admitted prior art of Fig. 11 in view of Warneke et al. Applicants respectfully traverse this rejection.

Among the limitations of independent claim 1, which are neither disclosed nor suggested in the prior art of record, is a high-frequency circuit board unit wherein "at least one of said terminal electrode of said circuit board and said high-frequency signal terminal of said semi-conductor device is connected to said ground-electrode-of-said circuit board for conducting direct current."

Among the limitations of independent claim 10, which are neither disclosed nor suggested in the prior art of record, is a manufacturing method for a high-frequency circuit board wherein at least one terminal of the passive impedance circuit device is connected to said ground electrode for conducting direct current.

With the circuit board unit of the present invention, the semi-conductor device is protected from exposure to a surge voltage. For example, if an electrostatic surge voltage is applied to the terminal electrode of the circuit board while the semi-conductor device is being mounted thereon, it is grounded before being able to reach the semi-conductor device. A high-frequency circuit board unit which is capable of protecting a semi-conductor device from a surge voltage is neither disclosed nor suggested in the prior art.

As admitted on page 2 of the Office Action, the admitted prior art of Fig. 11 neither discloses nor suggests that at least one terminal electrode of the circuit board and the high-frequency signal terminal of the semi-conductor device is connected to the ground electrode of the circuit board for conducting direct current.

Warneke et al. does not remedy any of the deficiencies of the prior art in Fig. 11. Warneke et al. is directed to a filter which is used for changing filter characteristics by opening or closing MEM switches 22, 28 and/or 24. See Fig. 2. Because of this, the filter of Warneke et al. has eight possible different filter modes. There is nothing within Warneke et al. which teaches, let alone suggests, to connect a terminal electrode of a circuit board or a high-frequency signal terminal of a semi-conductor device to the ground electrode of the circuit board for conducting current to prevent application of surge voltage. Thus, there is no motivation for combining Warneke et al with the prior art of Fig. 11.

However, even if one were to substitute the filter of Warneke et al. for the filter 15 shown in prior art Fig. 11, one would not arrive at the presently claimed invention. Rather, one would arrive at a high-frequency circuit board unit which is capable of operating in eight different filter modes, but not capable of conducting direct current (i.e., suppressing a surge voltage) as required by independent claims 1 and 10. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

Claims 2-9 depend either directly or indirectly from independent claim 1 and include all of the limitations found therein. Claims 11-13 depend either directly or indirectly from independent claim 10 and include all of the limitations found therein. Each of these dependent claims include additional limitations which, in combination with the limitations of the claims from which they depend, are neither disclosed nor suggested in the prior art of record. Accordingly, claims 2-9 and 11-13 are likewise patentable.

The prior art made of record and not relied upon has been carefully reviewed. It is believed that this reference, either alone or combined with any other references of record, do not render the pending claims unpatentable.

In view of the foregoing, allowance of the application with claims 1-13 is respectfully and earnestly solicited.

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Respectfully submitted,

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Appendix A
Complete Set of Pending Claims

1. A high-frequency circuit board unit comprising:

a circuit board including a ground electrode and a terminal electrode; and

a semiconductor device mounted on said circuit board, including a high-frequency signal terminal for sending and receiving a high-frequency signal to and from said terminal electrode of said circuit board,

wherein at least one of said terminal electrode of said circuit board and said high-frequency signal terminal of said semiconductor device is connected to said ground electrode of said circuit board for conducting direct current.

2. A high-frequency circuit board unit according to claim 1, further comprising a passive impedance circuit device mounted on said circuit board and connected between said high-frequency signal terminal and said terminal electrode,

wherein one of said high-frequency signal terminal and said terminal electrode is connected to said ground electrode for conducting direct current via said passive impedance circuit device.

3. A high-frequency circuit board unit according to claim 1, further comprising a passive impedance circuit device mounted on said circuit board and connected between said high-frequency signal terminal and said terminal electrode,

wherein both said high-frequency signal terminal and said terminal electrode are connected to said ground electrode for conducting direct current via said passive impedance circuit device.

4. A high-frequency circuit board unit according to one of claims 2 and 3, wherein said passive impedance circuit device is formed on a dielectric substrate having a dielectric constant higher than that of both said circuit board and said semiconductor device.

5. A high-frequency circuit board unit according to one of claims 2 and 3, wherein said semiconductor device is bump-mounted on said circuit board.

6. A high-frequency circuit board unit according to any one of claims 1 to 3,further comprising an additional terminal other than said high-frequency signal terminal on said semiconductor device, and an electrostatic protecting diode connected to said additional terminal.

7. A high-frequency module comprising said high-frequency circuit board unit set forth in any one of claims 1 to 3, further comprising an additional component mounted on said circuit board, a cover on said circuit board, and said terminal electrode being disposed externally of said cover.

8. An electronic apparatus comprising said high-frequency module set forth in claim 7.

9. An electronic apparatus comprising said high-frequency circuit board unit set forth in any one of claims 1 to 3.

10. A manufacturing method for a high-frequency circuit board unit, comprising the steps of:

mounting, on a circuit board including a ground electrode and a terminal electrode, a passive impedance circuit device, at least one terminal of which is connected to said ground electrode for conducting direct current, in such a manner that said at least one terminal is connected to said terminal electrode; and

mounting a semiconductor device including a high-frequency signal terminal on said circuit board in such a manner that said high-frequency signal terminal is connected to the other terminal of said passive impedance circuit device.

11. A manufacturing method for a high-frequency circuit board unit according to claim 10, wherein said passive impedance circuit device and said semiconductor device are bump-mounted on said circuit board.

12. A manufacturing method according to claim 10, wherein said at least one terminal of said passive impedance circuit device is connected to said ground electrode after said semiconductor device is mounted on said circuit board.

13. A manufacturing method according to claim 12, wherein said at least one terminal of said passive impedance circuit device is connected to said ground electrode before said high-frequency signal terminal is connected to said other terminal of said passive impedance circuit device.